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## Hypertension: *More action needed*

Hypertension is still not being detected and treated as well as current evidence shows it could be, according to Professor Lindon Wing, chair of the Heart Foundation's Blood Pressure Advisory Committee.

In a 1989 Heart Foundation survey only 50% of people detected with high blood pressure knew they had it. Of those who knew they had high blood pressure, 50% had fair control of their condition while only 25% had it well controlled. According to Professor Wing there is no reason to consider this finding has changed in the last decade.

In October the Heart Foundation is releasing a new *Guide to Management of Hypertension for Doctors* that recommends more aggressive action be taken to diagnose and treat hypertension.

Information in the Guide is consistent with new international guidelines published by the World Health Organization and International Society of Hypertension (WHO-ISH), and Australian guidelines published in the recently revised 3rd edition of *Therapeutic Guidelines: Cardiovascular*.

The Guide recommends that a management plan aimed at both blood pressure reduction and reduction of overall cardiovascular risk be considered in all patients with hypertension (BP>140mmHg systolic and/or >90 mmHg diastolic). It contains information on how to determine a patient's risk category and how to

determine what drug treatment, if any, is needed and the level of treatment.

Lifestyle modifications are promoted as an integral part of managing hypertension, whether or not antihypertensive drugs are used. Evidence has shown that effective non-pharmacological measures may abolish or reduce the need for drugs.

One of the more controversial aspects of the Guide, according to Professor Wing, are the revised target blood pressure levels to aim for once people have been diagnosed with hypertension. For adults less than 65 years of age or with diabetes or renal disease the recommended target is a normal blood pressure, ie below 130/85mmHg, and for those over 65 years a target of below 140/90mmHg.

This concurs with the WHO-ISH Guidelines but Professor Wing says some people will feel these targets are too aggressive. "There has been a lot of debate about these treatment goals. I believe, however, that they are based on good information."

"Outcomes in Australia are not as good as the evidence shows they could be. If we are aiming for what the evidence shows to be predictable, the approach has to be aggressive."

GPs, the October issue of Prescribing Practice Review includes more information and a clinical audit on treating hypertension.

## Information on managing hypertension

The Heart Foundation's *Guide to Management of Hypertension for Doctors* will be distributed in October with *Australian Family Physician*. Also at: <http://www.heartfoundation.com.au>.

The revised 3rd edition of *Therapeutic Guidelines: Cardiovascular* provides comprehensive information

on managing cardiovascular disease, including hypertension. Contact Therapeutic Guidelines: free call 1800 061 260; web site <http://www.tg.com.au>.

For information about the drugs used in managing hypertension, see the *Australian Medicines Handbook*. Tel: 08 8222 5861; web site <http://www.amh.net.au>.



# Prescribing pointers

## Which antihypertensive drug to use

Drugs from all six main classes of antihypertensive agents are effective in lowering blood pressure, with no substantive differences between drug classes in effects on blood pressure. Drugs from any of the main classes are suitable for initiation and maintenance of antihypertensive therapy. However several factors should be considered in selecting a drug:<sup>1</sup>

- ▲ the patient's cardiovascular risk profile
- ▲ presence of target-organ damage, clinical cardiovascular disease, renal disease or diabetes
- ▲ presence of coexisting conditions which may either favour or limit the use of particular drug classes, eg diabetes and respiratory diseases
- ▲ variation in individual patient responses to drugs from different classes
- ▲ possibility of interactions with other co-prescribed drugs
- ▲ strength of evidence for the reduction of cardiovascular events with individual drugs (mortality data only available for thiazide diuretics and beta-blockers)
- ▲ cost.

Outcomes of major mortality and morbidity trials have shown that thiazide diuretics or beta-blockers

should be considered for initiation of therapy where no reason exists to favour a specific agent.

Low dose thiazide diuretics have been shown to be particularly effective in the elderly as long as patients are monitored for electrolyte disturbances.

Some beta-blockers are now being used in the treatment of heart failure but because of the risks involved these should only be used under specialist supervision.

ACE inhibitors should be considered in patients with diabetes, particularly with nephropathy, and in those with congestive heart failure or left ventricular dysfunction.

Data available for angiotensin II receptor antagonists are limited. Consequently their use should be reserved for treatment of hypertension in patients for whom there is good reason to use ACE inhibitors but who are intolerant of them.

Note that cough and angioedema have occurred even with angiotensin II receptor antagonists. Therefore caution should be exercised when using these drugs, especially in patients who have experienced angioedema with ACE inhibitors.

See the table on back page for indications and contraindications for selecting other drug groups.

*Adapted from: Guide to Management of Hypertension for Doctors, National Heart Foundation of Australia, 1999.*

## Low dose thiazides safe and effective<sup>2,3</sup>

It is generally well recognised that thiazide diuretics can effectively lower blood pressure and decrease the complications associated with hypertension. High doses (equivalent to 50mg of hydrochlorothiazide), however, have been known to have adverse effects on cardiovascular risk factors such as impairment of glucose tolerance and increases in plasma cholesterol.

It is now known that the dose-response relationship for the anti-hypertensive effect of thiazides is quite flat with little benefit gained from doses above 25% of those originally recommended.\*

It has been recommended that doses equivalent to between 12.5mg (very low dose) and 25mg (low dose) of hydrochlorothiazide be prescribed. At this dose range thiazide diuretics have been shown to cause fewer major metabolic side effects. (See page 3 for list of available thiazides showing low dose and very low dose equivalents.)

Thiazides remain the drug of choice for treating hypertension in the elderly and for isolated systolic

hypertension. Recent studies show low dose and very low dose thiazides reduce the incidence of stroke by approximately 40% and incidence of coronary events by 20%.<sup>4</sup>

It is not always possible to halve or quarter a tablet. Only hydrochlorothiazide and chlorthalidone are available in a low dose form without having to break a tablet and so are preferred when treating the elderly.

Trials using a diuretic in combination with other classes of antihypertensives have also shown the benefits of using a low dose diuretic as second-line therapy when a compelling indication would lead to selection of another agent, eg a beta-blocker in a patient with angina, as first-line therapy.

Indapamide is up to twice as expensive as other thiazide diuretics and there is no evidence of substantial superiority to cheaper alternatives.

*\* For more information on thiazide diuretics, see the editorial by Professor Lindon Wing in this issue of Australian Prescriber 1999;22:5.*

# A Salutary Tale



Contributed by Gillian Shenfield, Clinical Professor in Clinical Pharmacology, Royal North Shore Hospital, Sydney

**Patient:** A 72 year old woman referred to hospital because of weakness, dizziness, drowsiness and confusion for 10 days.

**Current medications:** Daily atenolol 50mg, ranitidine 150mg, and indapamide 2.5mg started recently for poorly controlled hypertension. On a low salt diet.

**Scenario:** Dehydrated older woman. Disorientated in time and place. Uncooperative.

Blood pressure 170/100mmHg, no postural drop, pulse 70.

Serum sodium 119, potassium 3.2, creatinine 0.12 mmol/l.

No evidence of infection.

**Diagnosis:** Hyponatraemia due to indapamide. Associated mild hypokalaemia. Dehydration, prerenal renal failure.

**Outcome:** Indapamide was ceased and intravenous normal saline plus potassium chloride given. Over the next five days she became fully orientated and alert. Her serum creatinine and electrolytes returned to

normal. Blood pressure remained elevated but responded well to a calcium channel blocker.

**Background:** Older people are very sensitive to the effects of thiazide diuretics when used in high doses. Hyponatraemia is particularly common in the summer months due to excess sweating, and low sodium diets allow very little 'reserve'. Renal function is always reduced in the elderly and even short periods of inadequate fluid intake may raise serum creatinine.

## Lessons learned

- ▲ Indapamide, a thiazide-like diuretic, is just as likely as any other thiazide diuretic to cause hyponatraemia and hypokalaemia, especially when used in high doses.
- ▲ Low dose or very low dose thiazides should be used in older patients.
- ▲ Monitor patients on thiazide diuretics for electrolyte disturbance.
- ▲ If diagnosed early, stopping the drugs and encouraging fluid intake will be all that is necessary to reverse the changes.
- ▲ Older patients should not be too extreme with sodium restricted diets.

## Thiazide and thiazide-like diuretics

Product	Low dose equivalent	Very low dose equivalent
Bendrofluazide 5mg (Aprinox®, scored)	2.5mg (1/2 tablet)	1.25mg (1/4 tablet)
Chlorothiazide 500mg (Chlotride®, scored)	250mg (1/2 tablet)	125mg (1/4 tablet)
Chlorthalidone 25mg (Hygroton®, scored)	25mg (1 tablet)	12.5mg (1/2 tablet)
Hydrochlorothiazide 25mg (Dichlotride®, scored)	25mg (1 tablet)	12.5mg (1/2 tablet)
Hydrochlorothiazide 50mg (Dichlotride®, scored)	25mg (1/2 tablet)	12.5 mg (1/4 tablet)
Indapamide 2.5mg (Dapa-Tabs®, Indahexal®, Insig®, Naride®, Napamide®, Natrilix®)	1.25mg (1/2 tablet)	0.75mg (1/4 tablet)
Indapamide 1.5mg (Natrilix SR®) Not on the PBS	1.5mg (1 tablet)	Not possible to break
<b>Potassium-sparing combinations</b>		
Hydrochlorothiazide 25mg with triamterene 50mg (Dyazide®, scored; Hydrene 25/50®, scored)	25mg/50mg (1 tablet)	12.5mg/25mg (1/2 tablet)
Hydrochlorothiazide 50mg with Amiloride 5mg (Amizide®, Modizide®, Moduretic®)	25mg/2.5mg (1/2 tablet)	12.5mg/1.25mg (1/4 tablet)

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## Guidelines for selecting drug treatment of hypertension<sup>2</sup>

Class of drug	Compelling indications	Possible indications	Compelling contraindications	Possible contraindications
<b>Thiazide (see page 3) diuretics</b>	Heart failure Elderly patients Systolic hypertension	Diabetes	Gout	Dyslipidaemia Sexually active males
<b>Beta-blockers</b> <i>Beta, selective:</i> atenolol, metoprolol, timolol <i>Alpha- and beta-blockers:</i> carvedilol, labetalol <i>Nonselective:</i> oxprenolol, pindolol, propranolol	Angina After myocardial infarction Tachyarrhythmias	Heart failure Pregnancy Diabetes	Asthma COPD Heart block*	Dyslipidaemia Athletes and physically active Peripheral vascular disease
<b>ACE inhibitors (angiotensin converting enzyme)</b> captopril, enalapril, fosinopril, lisinopril, perindopril, quinapril, ramipril,trandolapril	Heart failure Left ventricular dysfunction After myocardial infarction Diabetic nephropathy		Pregnancy Hyperkalaemia Bilateral renal artery stenosis	
<b>Calcium channel blockers</b> <i>Dihydropyridines:</i> amlodipine, felodipine, nifedipine <i>Non-dihydropyridines:</i> diltiazem, verapamil	Angina Elderly patients Systolic hypertension	Peripheral vascular disease	Heart block**	Heart failure#
<b>Alpha-blockers</b> prazosin	Prostatic hypertrophy	Glucose intolerance Dyslipidaemia		Orthostatic hypotension
<b>Angiotensin II receptor antagonists</b> candesartan, irbesartan	ACE inhibitor cough	Heart failure	Pregnancy Bilateral renal artery stenosis Hyperkalaemia ACEI angioedema or nephropathy	
<b>Other antihypertensives</b> <i>Vasodilators:</i> hydralazine, minoxidil <i>Centrally acting antihypertensives:</i> clonidine, methyl dopa				

\* Grade 2 or 3 atrioventricular block; \*\*grade 2 or 3 atrioventricular block with verapamil or diltiazem; #verapamil or diltiazem.

Modified from WHO-ISH Guidelines for the Management of Hypertension.<sup>2</sup>

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